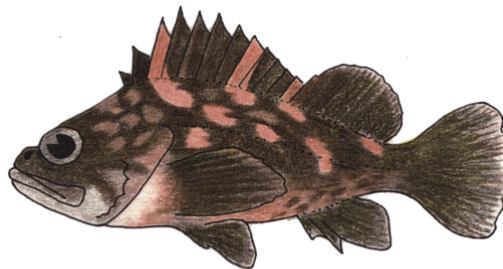


Gopher Rockfish, *Sebastes carnatus*

1993-1999 Commercial Catch by Ports & Blocks



Marine Fishery Profiles

Volume 1: Nearshore

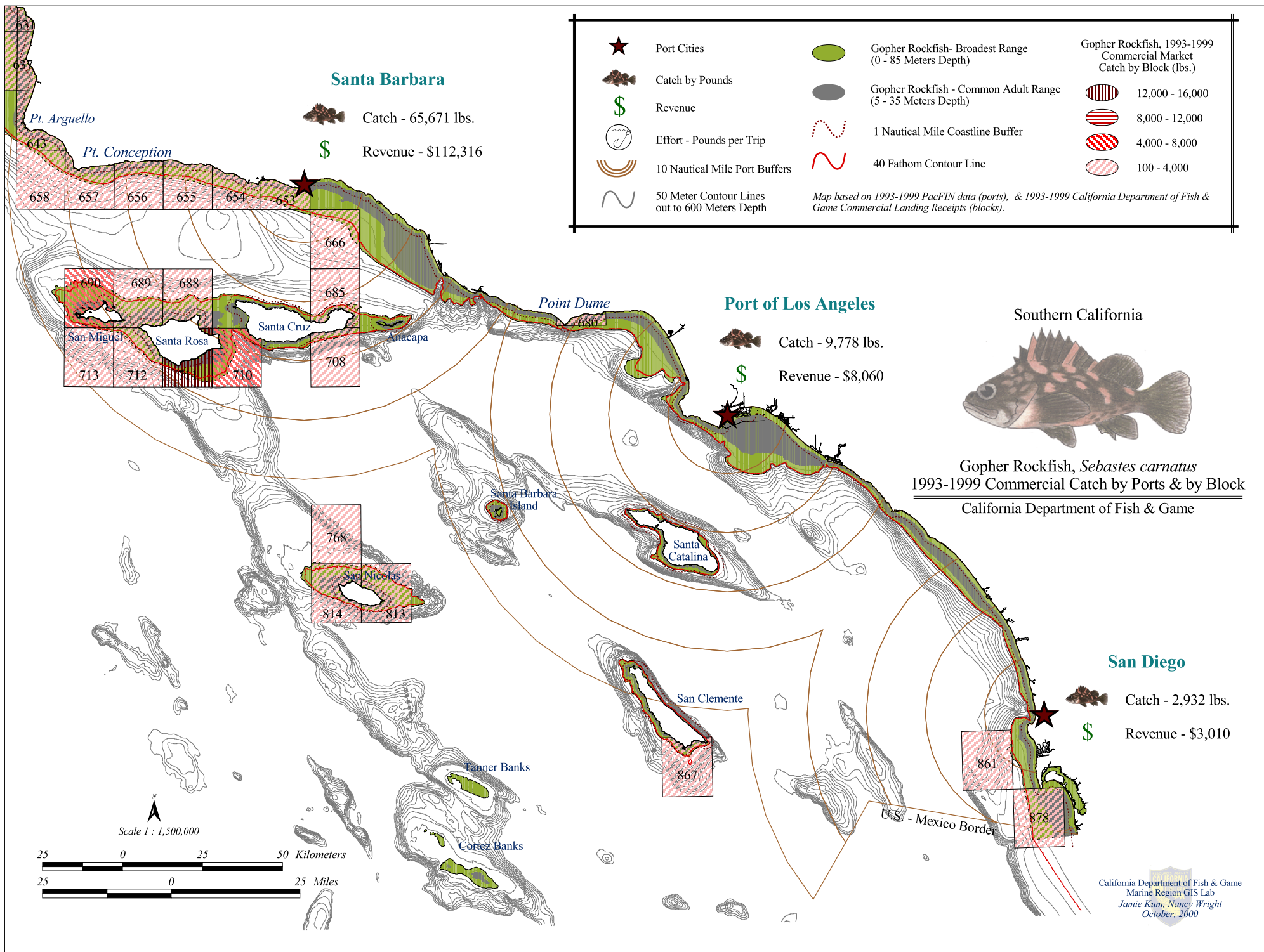
Marine Region GIS Lab

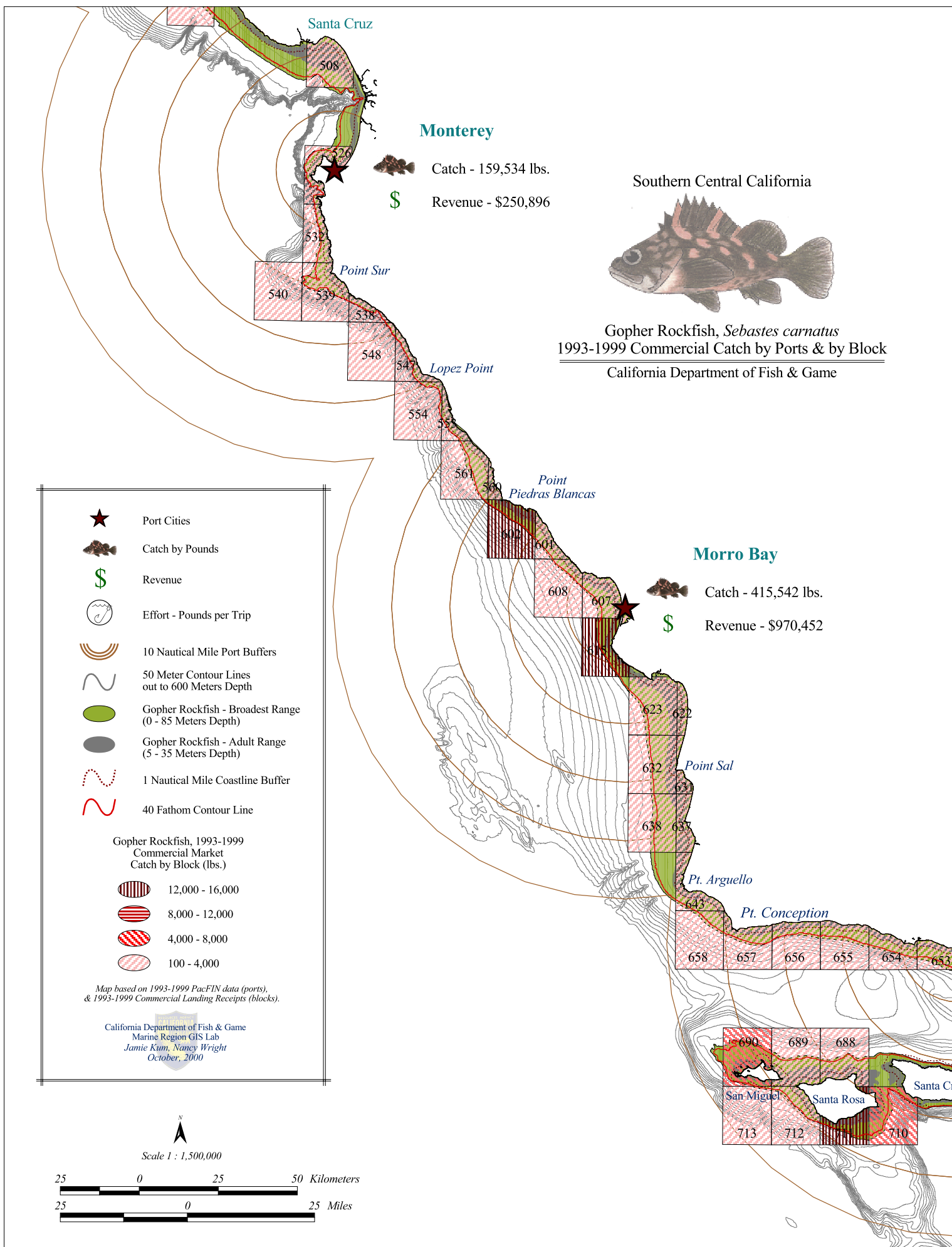
Nancy Wright	Eric Knaggs
Jamie Kum	Bob Leos
Chad King	Colleena Perez



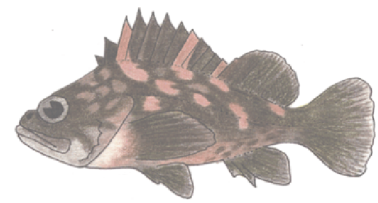
California Department of Fish & Game
Marine Region

December 2000





Northern Central California



Gopher Rockfish, *Sebastes carnatus*
1993-1999 Commercial Catch by Ports & by Block
California Department of Fish & Game

Bodega Bay



Catch - 63,780 lbs.



Revenue - \$111,544

San Francisco



Catch - 126,587 lbs.



Revenue - \$230,444

Half Moon Bay

Point Año Nuevo

Santa Cruz

Monterey



Catch - 159,534 lbs.



Revenue - \$250,896

Point Sur

Lopez Point

Point Piedras Blancas

- ★ Port Cities
- Catch by Pounds
- \$ Revenue
- Effort - Pounds per Trip
- 10 Nautical Mile Port Buffers
- 50 Meter Contour Lines out to 600 Meters Depth
- Gopher Rockfish - Broadest Range (0 - 85 Meters Depth)
- Gopher Rockfish - Adult Range (5 - 35 Meters Depth)
- 1 Nautical Mile Coastline Buffer
- 40 Fathom Contour Line

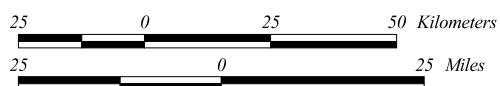
Gopher Rockfish, 1993-1999
Commercial Market
Catch by Block (lbs.)

- 12,000 - 16,000
- 8,000 - 12,000
- 4,000 - 8,000
- 100 - 4,000

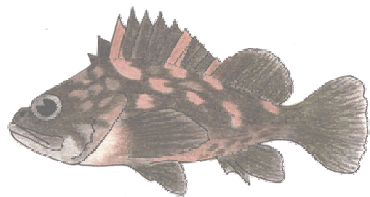
Map based on 1993-1999 PacFIN data (ports),
& 1993-1999 Commercial Landing Receipts (blocks).

California Department of Fish & Game
Marine Region GIS Lab
Jamie Kum, Nancy Wright
October, 2000

Scale 1 : 1,500,000



Northern California



Gopher Rockfish, *Sebastes carnatus* 1993-1999 Commercial Catch by Ports & by Block California Department of Fish & Game

- ★ Port Cities
- Catch by Pounds
- \$ Revenue
- Effort - Pounds per Trip
- 10 Nautical Mile Port Buffers
- 50 Meter Contour Lines out to 600 Meters Depth
- Gopher Rockfish - Broadest Range (0 - 85 Meters Depth)
- Gopher Rockfish - Adult Range (5 - 35 Meters Depth)
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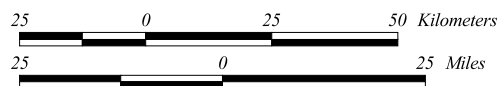
Gopher Rockfish, 1993-1999 Commercial Market Catch by Block (lbs.)

- 12,000 - 16,000
- 8,000 - 12,000
- 4,000 - 8,000
- 100 - 4,000

Map based on 1993-1999 PacFIN data (ports),
& 1993-1999 Commercial Landing Receipts (blocks).

California Department of Fish & Game
Marine Region GIS Lab
Jamie Kum, Nancy Wright
October, 2000

Scale 1 : 1,500,000



Crescent City

Catch - 100 lbs.
\$ Revenue - \$312

Eureka

Catch - 1,017 lbs.
\$ Revenue - \$655

Cape Mendocino

Punta Gorda

Fort Bragg

Catch - 27,562 lbs.
\$ Revenue - \$94,385

Point Arena

Figure 1. (refer to table 1) CDFG Commercial Receipts Data (1993 - 1999)
Total Pounds of Gopher Rockfish Caught and Average Price per Pound by Month

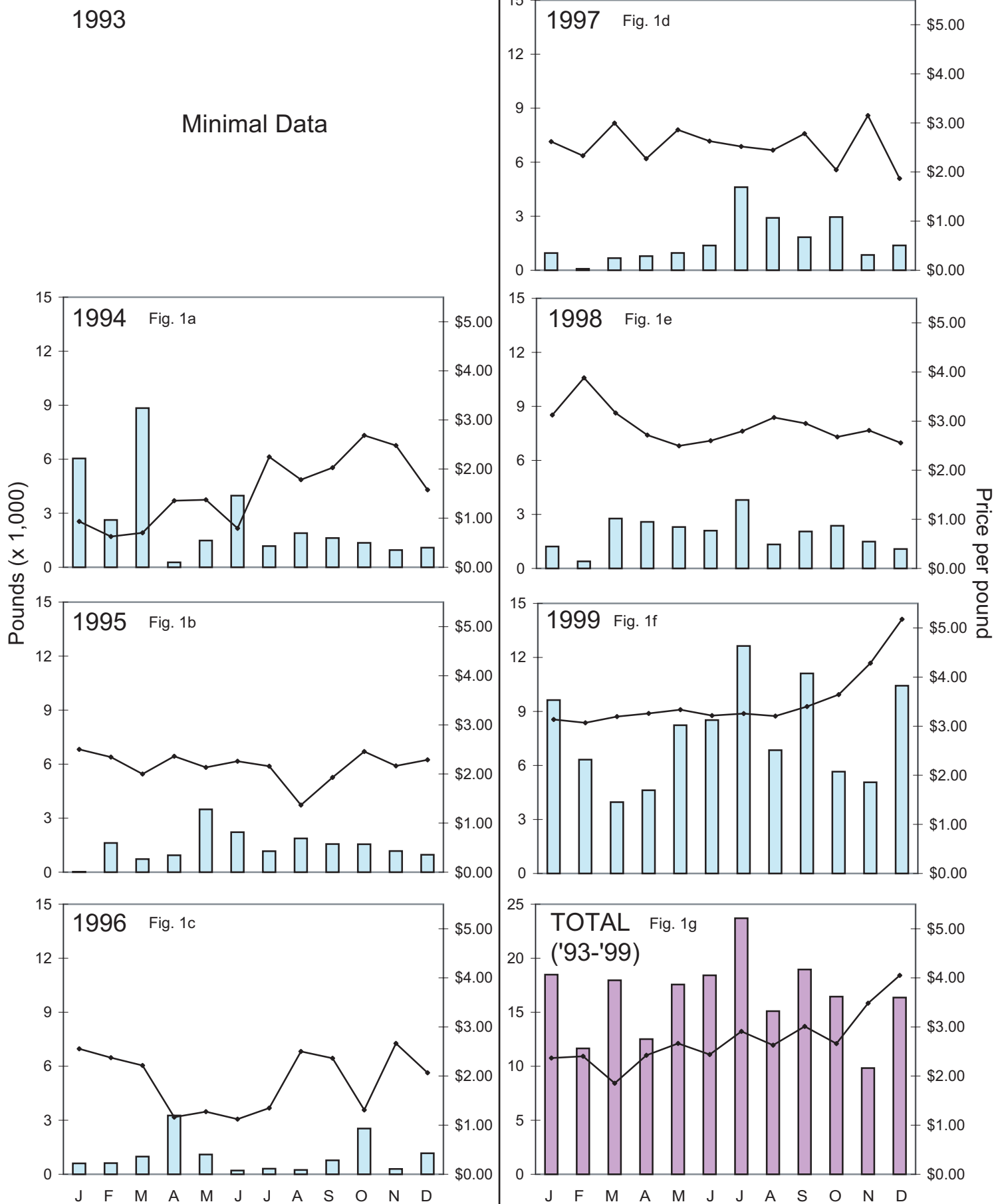


Table 1. (refer to fig. 1) CDFG Commercial Receipts Data (1993 - 1999)
Total Pounds of Gopher Rockfish Caught and Average Price per Pound by Month

1993
Table 1a

Month	Total Pounds	Price per Pound
Jan	no data	no data
Feb	no data	no data
Mar	no data	no data
Apr	47	\$1.65
May	no data	no data
Jun	20	\$1.15
Jul	no data	no data
Aug	no data	no data
Sep	no data	no data
Oct	25	\$1.00
Nov	no data	no data
Dec	258	\$2.35
Total	350	\$2.09

1997
Table 1e

Month	Total Pounds	Price per Pound
Jan	955	\$2.62
Feb	77	\$2.33
Mar	673	\$3.00
Apr	782	\$2.27
May	960	\$2.86
Jun	1,371	\$2.63
Jul	4,613	\$2.52
Aug	2,909	\$2.45
Sep	1,836	\$2.78
Oct	2,954	\$2.04
Nov	848	\$3.15
Dec	1,377	\$1.87
Total	19,353	\$2.48

1994
Table 1b

Month	Total Pounds	Price per Pound
Jan	6,043	\$0.93
Feb	2,628	\$0.63
Mar	8,840	\$0.70
Apr	272	\$1.36
May	1,486	\$1.37
Jun	3,977	\$0.79
Jul	1,176	\$2.25
Aug	1,896	\$1.78
Sep	1,624	\$2.03
Oct	1,356	\$2.68
Nov	954	\$2.48
Dec	1,086	\$1.58
Total	31,337	\$1.15

1998
Table 1f

Month	Total Pounds	Price per Pound
Jan	1,218	\$3.12
Feb	390	\$3.88
Mar	2,769	\$3.17
Apr	2,586	\$2.72
May	2,301	\$2.50
Jun	2,097	\$2.60
Jul	3,800	\$2.80
Aug	1,330	\$3.07
Sep	2,050	\$2.95
Oct	2,370	\$2.68
Nov	1,488	\$2.81
Dec	1,078	\$2.56
Total	23,477	\$2.83

1995
Table 1c

Month	Total Pounds	Price per Pound
Jan	25	\$2.50
Feb	1,621	\$2.34
Mar	728	\$2.00
Apr	941	\$2.36
May	3,490	\$2.13
Jun	2,221	\$2.26
Jul	1,168	\$2.16
Aug	1,875	\$1.37
Sep	1,563	\$1.93
Oct	1,552	\$2.46
Nov	1,177	\$2.16
Dec	966	\$2.29
Total	17,327	\$2.12

1999
Table 1g

Month	Total Pounds	Price per Pound
Jan	9,632	\$3.14
Feb	6,321	\$3.07
Mar	3,963	\$3.20
Apr	4,622	\$3.26
May	8,234	\$3.33
Jun	8,522	\$3.22
Jul	12,636	\$3.26
Aug	6,846	\$3.21
Sep	11,112	\$3.40
Oct	5,653	\$3.64
Nov	5,067	\$4.28
Dec	10,429	\$5.18
Total	93,037	\$3.54

1996
Table 1d

Month	Total Pounds	Price per Pound
Jan	606	\$2.56
Feb	616	\$2.37
Mar	981	\$2.22
Apr	3,262	\$1.16
May	1,099	\$1.27
Jun	206	\$1.12
Jul	310	\$1.35
Aug	241	\$2.50
Sep	773	\$2.36
Oct	2,538	\$1.31
Nov	297	\$2.66
Dec	1,167	\$2.07
Total	12,095	\$1.65

TOTAL
'93 - '99
Table 1h

Month	Total Pounds	Price per Pound
Jan	18,479	\$2.37
Feb	11,653	\$2.40
Mar	17,954	\$1.85
Apr	12,511	\$2.42
May	17,569	\$2.67
Jun	18,414	\$2.44
Jul	23,702	\$2.91
Aug	15,097	\$2.63
Sep	18,957	\$3.01
Oct	16,447	\$2.66
Nov	9,831	\$3.48
Dec	16,361	\$4.05
Total	196,976	\$2.73

Figure 2. (refer to table 2) Pacific Fisheries Information Network Data (1993 - 1999)
Total Pounds of Gopher Rockfish Caught and Average Price per Pound by Month

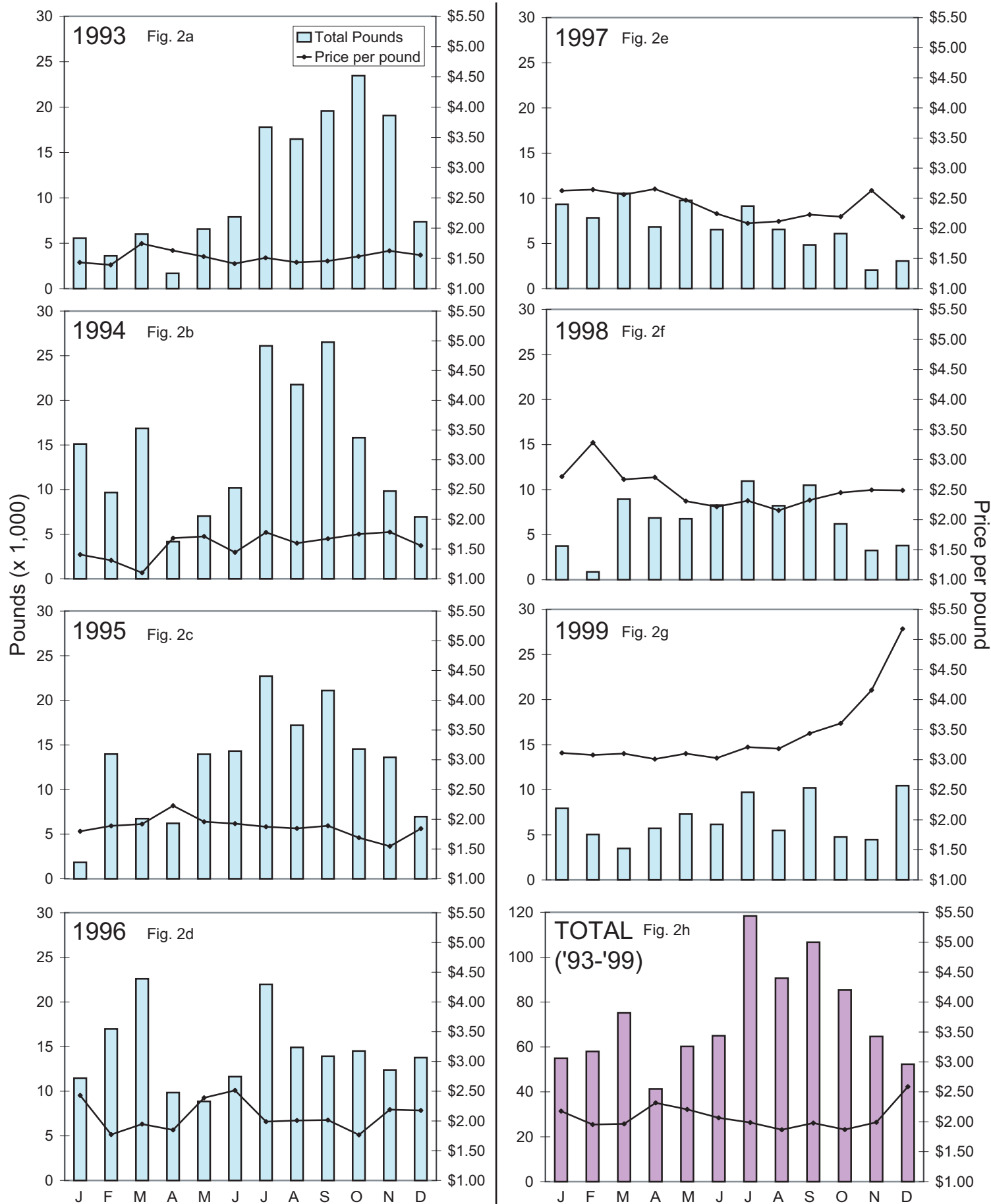


Table 2. (refer to fig. 2) Pacific Coast Fisheries Information Network Data (1993 - 1999)
Total Pounds of Gopher Rockfish Caught and Average Price per Pound by Month

1993

Table 2a

Month	Total Pounds	Price per Pound
Jan	5,552	\$1.43
Feb	3,615	\$1.39
Mar	6,009	\$1.75
Apr	1,688	\$1.63
May	6,572	\$1.53
Jun	7,900	\$1.41
Jul	17,798	\$1.51
Aug	16,483	\$1.44
Sep	19,573	\$1.46
Oct	23,457	\$1.53
Nov	19,086	\$1.63
Dec	7,378	\$1.55
Total	135,111	\$1.52

1997

Table 2e

Month	Total Pounds	Price per Pound
Jan	9,335	\$2.63
Feb	7,838	\$2.64
Mar	10,535	\$2.56
Apr	6,823	\$2.65
May	9,774	\$2.47
Jun	6,533	\$2.24
Jul	9,131	\$2.08
Aug	6,550	\$2.12
Sep	4,838	\$2.23
Oct	6,088	\$2.19
Nov	2,056	\$2.63
Dec	3,053	\$2.19
Total	82,554	\$2.40

1994

Table 2b

Month	Total Pounds	Price per Pound
Jan	15,106	\$1.41
Feb	9,666	\$1.31
Mar	16,856	\$1.10
Apr	4,157	\$1.68
May	7,021	\$1.71
Jun	10,185	\$1.44
Jul	26,102	\$1.78
Aug	21,763	\$1.60
Sep	26,514	\$1.67
Oct	15,803	\$1.75
Nov	9,828	\$1.79
Dec	6,933	\$1.56
Total	169,934	\$1.58

1998

Table 2f

Month	Total Pounds	Price per Pound
Jan	3,738	\$2.72
Feb	871	\$3.28
Mar	8,939	\$2.67
Apr	6,855	\$2.71
May	6,763	\$2.31
Jun	8,277	\$2.22
Jul	10,945	\$2.32
Aug	8,211	\$2.15
Sep	10,493	\$2.32
Oct	6,198	\$2.45
Nov	3,257	\$2.49
Dec	3,784	\$2.49
Total	78,331	\$2.42

1995

Table 2c

Month	Total Pounds	Price per Pound
Jan	1,833	\$1.80
Feb	13,968	\$1.89
Mar	6,740	\$1.92
Apr	6,214	\$2.23
May	13,953	\$1.96
Jun	14,303	\$1.93
Jul	22,708	\$1.87
Aug	17,198	\$1.85
Sep	21,092	\$1.89
Oct	14,537	\$1.69
Nov	13,615	\$1.55
Dec	6,963	\$1.84
Total	153,124	\$1.85

1999

Table 2g

Month	Total Pounds	Price per Pound
Jan	7,934	\$3.11
Feb	5,044	\$3.08
Mar	3,483	\$3.10
Apr	5,724	\$3.01
May	7,300	\$3.10
Jun	6,153	\$3.03
Jul	9,725	\$3.21
Aug	5,494	\$3.18
Sep	10,214	\$3.44
Oct	4,760	\$3.61
Nov	4,457	\$4.16
Dec	10,456	\$5.18
Total	80,744	\$3.51

1996

Table 2d

Month	Total Pounds	Price per Pound
Jan	11,466	\$2.43
Feb	16,979	\$1.77
Mar	22,600	\$1.95
Apr	9,842	\$1.85
May	8,858	\$2.39
Jun	11,628	\$2.51
Jul	21,962	\$1.99
Aug	14,913	\$2.01
Sep	13,916	\$2.01
Oct	14,504	\$1.77
Nov	12,379	\$2.19
Dec	13,756	\$2.18
Total	172,803	\$2.05

TOTAL
'93 - '99

Table 2h

Month	Total Pounds	Price per Pound
Jan	54,964	\$2.18
Feb	57,981	\$1.95
Mar	75,162	\$1.96
Apr	41,303	\$2.32
May	60,241	\$2.21
Jun	64,979	\$2.07
Jul	118,371	\$1.99
Aug	90,612	\$1.87
Sep	106,640	\$1.98
Oct	85,347	\$1.87
Nov	64,678	\$1.99
Dec	52,323	\$2.59
Total	872,601	\$2.04

Abbreviated Life History of the Gopher Rockfish (*Sebastes carnatus*)

Carnatus, a Latin word for Aflesh colored@describes the coloring of gopher rockfish, which are brown or dark brown with large pink to whitish blotches.

Distribution, Stock Structure and Migration

Gopher rockfish range from Eureka, California to San Roque, central Baja California, but they are most common from about Mendocino County, California to Santa Monica Bay. Larvae and young juveniles are pelagic, but as the juveniles mature, they will settle on rocky reefs or into the kelp canopy. Adults are residential and demersal, associated with kelp beds or rocky reefs, from the intertidal to about 264 ft, most commonly between 30 and 120 foot depths.

Age and Growth

Maximum age estimates from northern and central California range from 24 to 30 yr. Based on a calculated age-length relationship for aging, an 8-in TL gopher rockfish is approximately 3-4 yr old, a 10-in. TL fish is approximately 5-6 yr old, and a 12-in. fish is approximately 9-10 yr old. Their largest recorded size is 15.7 inches.

Reproduction, Fecundity and Seasonality

In southern California waters, both males and females reach first maturity at 3 yr, 5.3 in. TL. Off central and northern California, half of the population of males, as well as females, will reach maturity at 4 yr, 6.7 in. TL, and by 10 yr, 9 in. TL, the entire population of males will have reached reproductive maturity.

Off California, spawning takes place between January and July, with peak spawning in February, March and May. It may take up to 90 days, at a range of .08 to 1.6 in. TL, before the larvae settle out of the plankton. In central California, June has been observed to be the primary month for recruitment of larvae to nearshore areas.

Natural Mortality

There are no estimates of natural mortality for gopher rockfish.

Diseases

No information is available on diseases in gopher rockfish.

Predator/Prey Relationships

Gopher rockfish larvae are diurnal planktivores. Juveniles are also diurnal and eat crustaceans. Their predators include fishes, such as rockfishes, lingcod, cabezon, and salmon, as

well as birds and porpoises. Adult gopher rockfish are nocturnal predators that ambush their prey. Some of their prey items include crustaceans (particularly *Cancer* sp. crabs, caridean shrimp, anomurans), fish (including juvenile rockfish), and mollusks. Their predators include sharks, dolphins, and seals.

Competition

The territorial gopher rockfish excludes kelp rockfish from bottom territories and black-and-yellow rockfish from the deeper portions of its vertical distribution. Also, based on co-occurrence, gopher rockfish probably competes for food and space with cabezon, lingcod, greenlings, and other rockfish such as China, quillback, copper, and vermilion.

Critical Habitat

Small juveniles may inhabit the kelp canopy. Larger juveniles and adults are demersal and prefer shallow rocky substrate and kelp beds, as well as sandy areas near reefs, usually between 30 and 120 foot depths.

Status of Stocks

No formal stock assessments have been completed for gopher rockfish. This species is a valuable component of recreational and commercial fisheries in California.